

Sir Charles Gairdner Hospital

Heart Failure

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Exceptional care from dedicated people - we put patients first



What is Heart Failure



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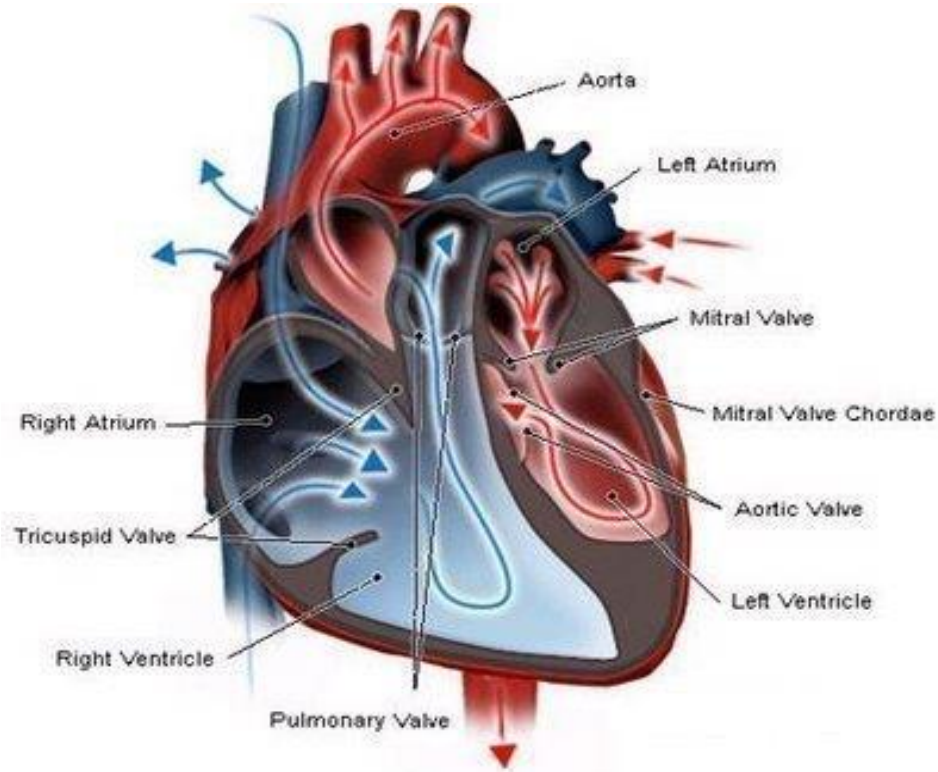
The session today: OBJECTIVES

At the end of today's session the participant will be able to:

- ♥ Define heart failure (HF)
- ♥ Identify the common causes of HF
- ♥ Describes the signs & symptoms of HF



The Normal Heart



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Heart failure is:

Characterised by:

- ♥ Objective evidence of an underlying structural abnormality
- ♥ Cardiac dysfunction impairing the ability of the ventricle to fill or eject blood.

National Heart Foundation of Australia and the Cardiac Society of Australia and New Zealand (CSANZ): Guidelines for the prevention, Detection and Management of Heart Failure in Australia 2018.





How many people have HF?

- ♥ Heart Failure currently affects at least 38 million people worldwide
- ♥ The lifetime risk of developing heart failure for women and men aged 55yrs is 29% and 33% respectively
- ♥ More than one in 10 persons 75yrs and over in developed countries are afflicted with heart failure
- ♥ Most common reason hospitalisation & GP consult in >70yr

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How many people have HF?

Heart Failure is under recognised

- ♥ People are surviving longer following heart attacks
- ♥ We are providing better interventional & medical therapy for patients with coronary heart disease (CHD)

Symptomatic heart failure has a poor prognosis

- ♥ 5 year survival after HF onset – 52-63% (1yr survival 81-91%)
- ♥ Mortality increases with age and NYHA class of HF





The difficulty in diagnosing Heart Failure

- ♥ Symptoms are confused for “something else”
 - ♥ Normal signs of aging
 - ♥ Lack of fitness
 - ♥ Previous asthma or COPD
 - ♥ New asthma





Causes of heart failure

Myocyte damage or loss:

- Infarction
- Ischaemia
- Microvascular disease
- Stunning or hibernation

Inflammation:

- Infection (viral or Chagas disease)
- Immune (autoimmune connective tissue disease)

Toxic damage:

- Alcohol
- Drugs (cytotoxic drugs, stimulant (amphet, cocaine), anabolic steroids)
- radiation



Causes Cont'd



Infiltration:

- Malignancy
- Amyloid
- Sarcoid
- Iron overload

Metabolic abnormalities:

- Thyroid
- Diabetes

Nutritional abnormalities:

- Deficiencies (thiamine, selenium, iron)



Causes cont'd



Genetic abnormalities:

- Dilated CMO
- Hypertrophic CMO
- LV noncompaction
- Arrhythmogenic right ventricular CMO
- Muscular dystrophies

Pregnancy and peripartum cases

Abnormal Loading conditions :

Hypertension

Valve and myocardium

Pericardial constriction or effusion



Causes cont'd



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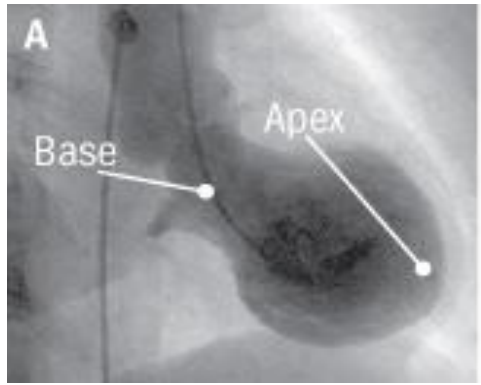
Pericardial constriction or effusion



Takotsubo – Stress induced cardiomyopathy



This can be a transient condition and can recover within a couple of months, it is more common in post menopausal women (2/3 women) with supportive measures





The link to this video will be sent to you after this presentation: -

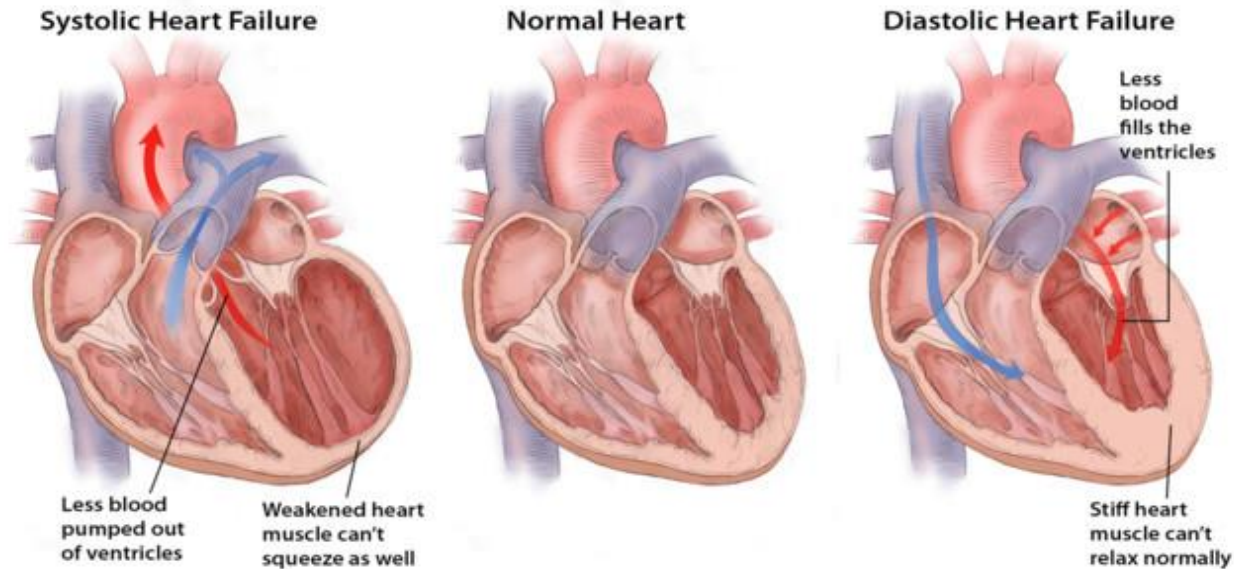
<https://youtu.be/2aiRpr5UCZs>

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2 types of Heart Failure

- SYSTOLIC – Not pumping with enough force, weakened & smaller muscle
- DIASTOLIC – Larger muscle leaving less space for filling, reduced output



Types of Heart Failure

Description



Left-sided heart failure

Fluid may back up in your lungs, causing shortness of breath.

Right-sided heart failure

Fluid may back up into your abdomen, legs and feet, causing swelling.

Systolic heart failure (HFrEF)

The left ventricle can't contract vigorously, indicating a pumping problem.

Diastolic heart failure (HFpEF)

The left ventricle can't relax or fill fully, indicating a filling problem.





Effects of Systolic Heart Failure

- ↓ pumping ability
- ↑ work
- ↑ oxygen demand
- ↑ muscle cell death

A way to measure pumping ability is “ejection fraction” – % of blood ejected each heart beat from the left ventricle (usually 55 – 70%) – HF range is usually < 40%



Diastolic Heart Failure – Heart Failure with Preserved Ejection Fraction (HFpEF)



Hypertrophy – bigger muscle (less space to fill) & stiffer (don't stretch as much) – fibrotic scar tissue (dead muscles)

Can't passively stretch & expand during filling

↓ blood supply

↑ muscles (bulk up)

↓ oxygen demand

Leads to cell death, fibrosis and stiffening of muscle tissue





Aetiology Diastolic Dysfunction

Common Causes:

- ♥ HTN

elderly **females** 40-50% of all hospital admissions for CHF

- ♥ Obesity

- ♥ Diabetes

- ♥ AF

CHD

leading to impairment myocardial relaxation

- ♥ Hypertrophic CMO

Most hereditary

- ♥ Restrictive CMO

idiopathic

secondary to infiltrative disease



Diastolic - Underlying diseases



1. Chronic hypertension \uparrow pressure \uparrow work – as a result it enlarges to pump against higher pressures (diet & diabetes are risk factors for this)
2. Aortic stenosis (narrowed valve) \uparrow pressure \uparrow work
2. Cardiomyopathies – hypertrophic (enlarged) or restrictive (stiff)



Symptoms of Heart Failure



- Tiredness or fatigue
- ↓ urine output
- ↑ heart rate
- ↑ fluid retention
- Shortness of breath
- Unable to lie flat
- Waking up SOB in the night
- Leg, ankle, feet swelling
- Bloating of the abdomen
- Dizzy spell/palpitations
- Cough (pink/frothy)





NYHA CLASSIFICATION

Functional classification of heart failure

Class I – No limitation of ordinary physical activity.

Class II – Slight limitation of ordinary physical activity (No symptoms at rest)

Class III – Marked limitation of ordinary physical activity (No symptoms at rest).

Class IV - Symptoms on any physical activity or at rest



Is there a CURE for Heart Failure



♥ For most Heart Failure patients there is NO cure

♥ **BUT**, early diagnosis and proper treatment and self management can:

- ♥ Significantly slow the progression of disease
- ♥ Reduce hospital admission
- ♥ Improve mortality





Treatment for Heart Failure

- Treat the condition causing the issue (hypertension, coronary heart disease and diabetes)
- Exercise - ↑ heart pump
- Diet - ↓ salt (sodium) intake
- Medications: -
 - ACE/ARB Inhibitors – Make vessels wider ↓ pressure in vessels, making it easier to pump blood out
 - Beta blockers – dampens down the effects of the fight/flight response, reducing the work of the heart
 - Diuretics – remove excess fluid, to reduce symptoms
 - ARB/Nepriilsin inhibitors- relax blood vessels so blood can flow easier





Drugs aggravating HF

- ♥ Calcium Channel Blockers (CCB) ie. Diltiazem hydrochloride (-ve inotropic & pro-ischaemic effects).
- ♥ Tricyclic Antidepressants ie. Amitriptyline (↓Cardiac function & pre-arrhythmic effects).
- ♥ NSAIDs & Corticosteroids (Na⁺/ H₂O retention).



Pharmacological measures



- ♥ These are critical
- ♥ Multiple medications are part of standard care
- ♥ Patient eventually feels better
- ♥ Medications slow the disease progression
- ♥ Keeps the patient out of hospital



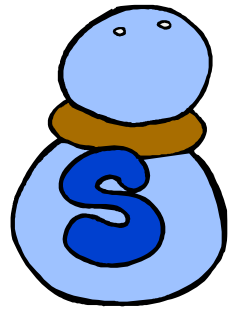


Self management is the key



- ♥ Daily monitoring & recording of body weight
- ♥ Familiarity with reportable symptoms
- ♥ Yearly flu injections & pneu vacc





Self Management - Diet

- ♥ 75% of Na⁺ consumption from processed & take-away foods.
- ♥ Low-salt food has 120mg/ Na⁺/ 100g
- ♥ Remove salt shaker from the table
- ♥ Cease adding salt to cooking
- ♥ No salt substitutes as ↑K⁺
- ♥ Na⁺/ salt restriction to <2g/ day



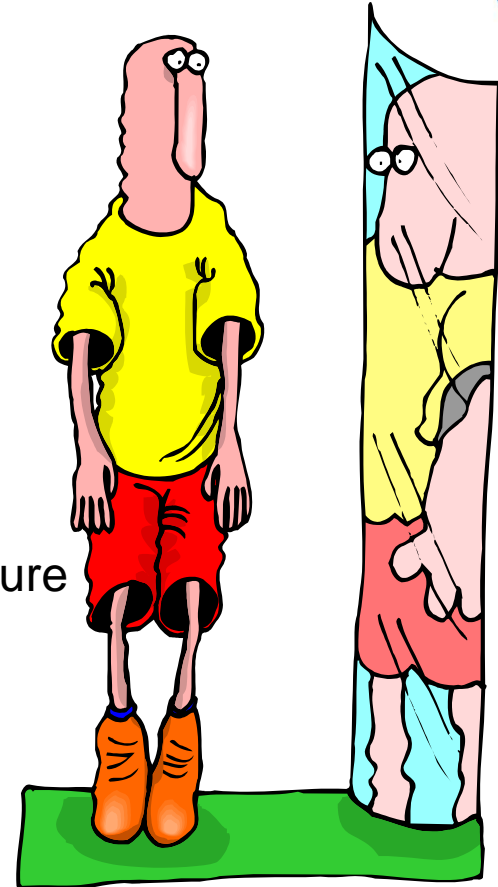
Other Diet Issues



♥ Reducing obesity

- ♥ ↓ cardiac workload
- ♥ ↓ BP
- ♥ Improves lipid profile

- ♥ Consider nourishment for severe heart failure (cachexia)





Fluid Management

< 1.5 – 2 litres/day (as advised by your doctor)

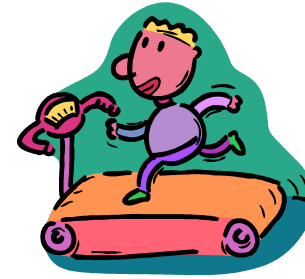
- Measure favourite cup
- Place a bottle of water with daily allowance in the fridge, remove fluid as you drink throughout the day
- Include milk on cereal, ice cubes, jelly, soups, ice-cream etc
- Liquorice is not advised

Alcohol

- If alcoholic cardiomyopathy – NO ALCOHOL
- Otherwise 1-2 standard drinks per day



Self Management – Exercise



- ♥ Benefits including improving:
- ♥ ↑ the availability of oxygen to the body
- ♥ SOB & fatigue
- ♥ QoL
- ♥ Psychological well being

Benefits commence after 3 wks of training **but only persist if training continues**





Exercise Recommendations

♥ 10 – 30 min >5 times/ wk (8-12 weeks)

♥ **Do not exercise:**

- ♥ Erratic bursts
- ♥ Holding breath/ bearing down
- ♥ Chest pain/ dizziness/ light headed/ palpitations
- ♥ Extreme fatigue
- ♥ Unable to speak
- ♥ In water over 31°C





LIVING WITH HEART FAILURE

Self-management

(Daily weighing & monitor symptoms)

Lifestyle Changes

(Diet, fluid & exercise)

Responsibilities

(Compliance and keeping appointments with health care team)

Medications





Emotional Effects of Heart Failure

It is a chronic condition and often associated with depression and anxiety.

- Emotionally it can be confronting
- May make them think about their own life goals
- Reliance on others
- The need to take medications daily
- Important to talk to others: - friends, family, GP, health care professionals if they are struggling.

IMPORTANT TO KNOW THEY ARE NOT ALONE!



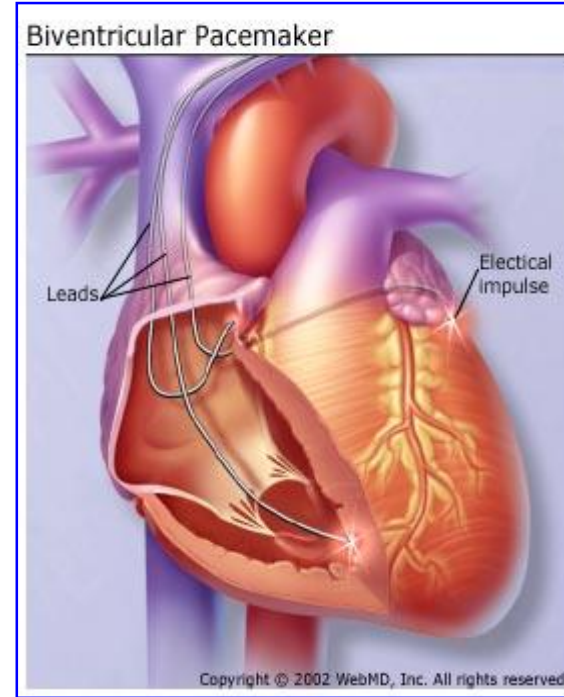
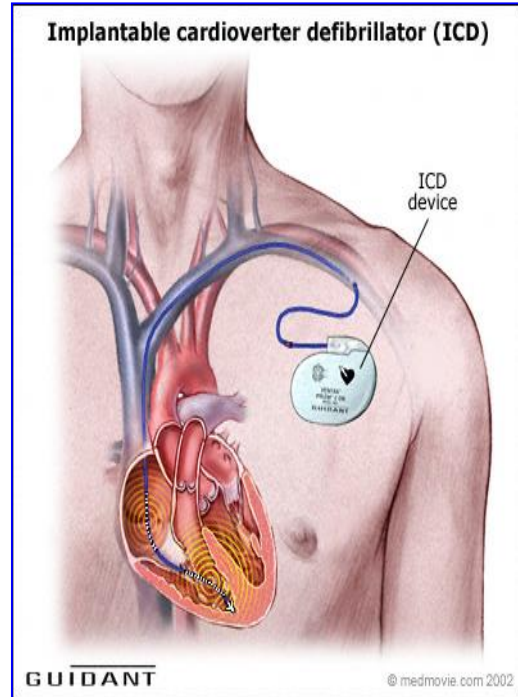


Treatment Summary

- Lifestyle modification
= SELF MANAGEMENT!!
- Medications
- Revascularisation – improving the blood supply
- Valve Surgery
- Biventricular Pacing
- Implantable Defibrillator
- Transplant & mechanical heart – as appropriate



Devices for a Heart Failure





- ♥ Any Questions?
- ♥ Thankyou for listening
- ♥ Please scan the QR code to complete the evaluation

